Part No. P0607274 01
September 17, 2003

Business Communications Manager

UPS Installation and Configuration Guide

NORTEL NETWORKS™

Copyright © 2003 Nortel Networks

All rights reserved. July, 2003.

The information in this document is subject to change without notice. The statements, configurations, technical data, and recommendations in this document are believed to be accurate and reliable, but are presented without express or implied warranty. Users must take full responsibility for their applications of any products specified in this document. The information in this document is proprietary to Nortel Networks NA Inc.

Trademarks

NORTEL NETWORKS and Business Communications Manager, are trademarks of Nortel Networks NA Inc.

Microsoft, MS, MS-DOS, Windows, and Windows NT are registered trademarks of Microsoft Corporation.

APC are registered trademarks of American Power Conversion, Inc.

All other trademarks and registered trademarks are the property of their respective owners.

North American Regulatory Information

Safety

Business Communications Manager equipment meets all applicable requirements of both the CSA C22.2 No. 950-95 and UL-1950 Edition 3.

Danger: Risk of shock.
Read and follow installation instructions carefully.
Ensure the Business Communications Manager and Business Communications Manager expansion unit are unplugged from the power socket and that any telephone or network cables are unplugged before opening the Business Communications Manager or Business Communications Manager expansion unit.
If installation of additional hardware and /or servicing is required, disconnect all telephone cable connections prior to unplugging the Business Communications Manager.
Ensure the Business Communications Manager and Business Communications Manager expansion unit are plugged into the wall socket using a three-prong power cable before any telephone cables are connected.

Caution: Only qualified persons should service the system.
The installation and service of this hardware is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or other persons.
Electrical shock hazards from the telecommunication network and AC mains are possible with this equipment. To minimize risk to service personnel and users, the Business Communications Manager system must be connected to an outlet with a third-wire ground. Service personnel must be alert to the possibility of high leakage currents becoming available on metal system surfaces during power line fault events near network lines. These leakage currents normally safely flow to Protective Earth ground via the power cord. Therefore, it is mandatory that connection to an earthed outlet is performed first and removed last when cabling to the unit. Specifically, operations requiring the unit to be powered down must have the network connections (central office lines) removed first.

Radio-frequency Interference

Warning: Equipment generates RF energy.
This equipment generates, uses, and can radiate radio-frequency energy. If not installed and used in accordance with the installation manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of the FCC Rules and with ICES.003, CLASS A Canadian EMI Requirements. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his or her own expense, will be required to take whatever measures may be required to correct the interference.

Telecommunication Registration

Business Communications Manager equipment meets all applicable requirements of both Industry Canada CS-03 and US Federal Communications Commission (FCC) Part 68 and has been registered under files Industry Canada 332D-5980A and FCC US:AB6KF15B20705 (key system), US:AB6MF15B20706 (hybrid system), and US:AB6PF15B23740 (PBX system). Connection of the Business Communications Manager telephone system to the nationwide telecommunications network is made through a standard network interface jack that you can order from your local telecommunications company. This type of customer-provided equipment cannot be used on party lines or coin lines.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician.

Electromagnetic Compatibility

Business Communications Manager equipment meets all FCC Part 15, Class A radiated and conducted emissions requirements.

Business Communications Manager does not exceed the Class A limits for radiated and conducted emissions from digital apparatus as set out in the Radio Interference Regulations of Industry Canada.

Telephone Company Registration

It is usually not necessary to call the telecommunications company with information on the equipment before connecting the Business Communications Manager system to the telephone network. If the telecommunications company requires this information, provide the following:

- telephone number(s) to which the system will be connected
- FCC registration number (on label affixed to Business Communications Manager)
- universal service order code (USOC)
- service order code (SOC)
- facility interface code (FIC)

Rights of the Telecommunications Company

If the Business Communications Manager system or adjunct systems is causing harm to the telephone network, the telecommunications company may discontinue service temporarily. If possible, the telecommunications company will notify you in advance. If advance notice is not practical, the user will be notified as soon as possible. The user will be given the opportunity to correct the situation and informed of the right to file a complaint to the FCC.

The telecommunications company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of the system. If this happens, the telecommunications company will give you advance notice in order for you to make any necessary modifications to maintain uninterrupted service.

Repairs

In the event of equipment malfunction, all repairs to certified equipment will be performed by an authorized supplier.

Canadian Regulations - please read carefully

Notice

The term "IC" before the certification number located on the host equipment only signifies that the Industry Canada technical specifications were met. The Department does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Notice

The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed 5.

This Class A device complies with Part 68 & Part 15 of the FCC Rules and ICES-003 Class A Canadian EMI requirements. Operation is subject to the following two conditions (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Do not attempt to repair this equipment. If you experience trouble, write for warranty and repair information:

Nortel Networks
30 Norelco Drive, Weston, Ontario
M9L 2X6 Canada

US Regulations - please read carefully

Federal Communications Commission (FCC) Notice

FCC registration number: This telephone equipment complies with Part 68, Rules and Regulations, of the FCC for direct connection to the Public Switched Telephone Network. (The FCC registration number appears on a sticker affixed to the bottom of the telephone.)

Your connection to the telephone line must comply with these FCC rules:

- An FCC compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network premises wiring using a compatible modular jack which is Part 68 compliant. See installation instructions for details.
- Use only an FCC Part 68-compliant Universal Service Order Code (USOC) network interface jack, as specified in the installation instructions, to connect this telephone to the telephone line. (To connect the phone, press the small plastic tab on the plug at the end of the phone's line cord. Insert into a wall or baseboard jack until it clicks. To disconnect, press the tab and pull out.) See installation instructions for details.
- If the terminal equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of the product may be required. But if advance notice isn't practical, the telephone company will notify you as soon as possible. You will also be advised of your right to file a complaint with the FCC, if you believe it is necessary.
- If a network interface jack is not already installed in your location, you can order one from your telephone company. Order the appropriate USOC Network interface jack, as specified in the installation instructions, for wall-mounted telephones or for desk/table use. In some states, customers are permitted to install their own jacks.
- Your telephone may not be connected to a party line or coin telephone line. Connection to Party Line Service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information.)

- It is no longer necessary to notify the Telephone Company of your phone's Registration and REN numbers. However, you must provide this information to the telephone company if they request it. The telephone company may make changes in its facilities, equipment, operation or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modification to maintain uninterrupted service.
- Do not attempt to repair this equipment. If you experience trouble, write for warranty and repair information:

  Nortel Networks
  640 Massman Drive,
  Nashville, TN, 37210, USA

Important Safety Instructions

The following safety instructions cover the installation and use of the Product. Read carefully and retain for future reference.

Installation

When installing your UPS equipment, basic safety precautions should always be followed to reduce risk of fire, electric shock and injury to persons, including the following:

Warning: To avoid electrical shock hazard to personnel or equipment damage observe the following precautions when installing telephone equipment:

1. Never install the UPS or other equipment during a lightning storm.
2. Never install the UPS in wet locations.

   This symbol on the product is used to identify the following important information: Use only with a CSA or UL certified CLASS 2 level C power supply.

Use

When using your UPS equipment, basic safety precautions should always be followed to reduce risk of fire, electric shock and injury to persons, including the following:

1. Read and understand all instructions.
2. Follow the instructions marked on the product.
3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
5. Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product.

6 This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.

7 Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.

8 Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

9 Never spill liquid of any kind on the product.

10 To reduce the risk of electric shock do not disassemble this product, but have it sent to a qualified service person when some service or repair work is required.

11 Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- **a** When the power supply cord or plug is damaged or frayed.
- **b** If the product has been exposed to rain, water or liquid has been spilled on the product, disconnect and allow the product to dry out to see if it still operates; but do not open up the product.
- **c** If the product housing has been damaged.
- **d** If the product exhibits a distinct change in performance.

12 **Caution:** To eliminate the possibility of accidental damage to cords, plugs and jacks, do not use sharp instruments during the assembly procedures.

13 Save these instructions.

Safety

WARNING!

Only qualified service personnel may install this equipment. The instructions in this manual are intended for use by qualified service personnel only.

Risk of shock.

Ensure the Business Communications Manager is unplugged from the power socket before installing the UPS device.

Read and follow installation instructions carefully

Only qualified persons should service the system.

The installation and service of this hardware is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or other persons.

Electrical shock hazards from the telecommunication network and AC mains are possible with this equipment. To minimize risk to service personnel and users, the UPS device must be connected to an outlet with a third-wire Earth.

Service personnel must be alert to the possibility of high leakage currents becoming available on metal system surfaces during power line fault events near network lines. These leakage currents normally safely flow to Protective Earth via the power cord. Therefore, it is mandatory that connection to an earthed outlet is performed first and removed last when cabling to the unit. Specifically, operations requiring the unit to be powered down must have the network connections (exchange lines) removed first.

Contents

North American Regulatory Information 2
Safety 2
Radio-frequency Interference 3
Telecommunication Registration 4
Electromagnetic Compatibility 4
Telephone Company Registration 4
Rights of the Telecommunications Company 5
Repairs 5
Canadian Regulations - please read carefully 5
US Regulations - please read carefully 6
Federal Communications Commission (FCC) Notice 6
Important Safety Instructions 7
Safety 8
Preface 13
Display Tips 13
Symbols used in this guide 14
Text conventions 15
Related publications 15
How to Get Help 16
Chapter 1
Uninterruptable Power Supply (UPS) Overview 17
UPS Overview 17
BCM and UPS power and control connections 18
UPS threshold values 19
Alarm and event reporting 19
Operational measurements and accounting 22
Log files and traces 22
UPS default configuration settings 22
Chapter 2
Install and Initialize the Uninterruptable Power Supply 25
Install and initialize the UPS 25
Procedure:
Install the UPS 25
Procedure:
Initialize the serial port 26
UPSConsoleToggle Service 27
Procedure:
Enable UPSConsoleToggle: 27
Procedure:
Enable the console (batch file): 28

Chapter 3
Monitor the Uninterruptable Power Supply 29

Monitor the UPS 29
Procedure:
Access the UPS Status monitor 30
Procedure:
Access the UPS OM and log reports 31
Procedure:
Access the UPS status report 33
Procedure:
Test the UPS 34

Figures

Figure 1 Acrobat Reader display setup selections 14
Figure 2 UPS / BCM power connections and topology 18
Figure 3 UPS configuration setup screen display 26
Figure 4 UPS Status monitor screen display 30
Figure 5 UPS OMs report 31
Figure 6 UPS Log file report 32
Figure 7 UPS status report 33

Tables

Table 1 UPS Event messages 20
Table 2 UPS default settings 22

Preface

This guide describes how to install, initialize and monitor the Business Communications Manager Uninterruptable Power Supply (UPS) device.

Information in these chapters explains:

- how to set up the UPS
- how to start and initialize the UPS
- how to test and monitor the UPS

Display Tips

You can read this publication from your computer monitor or printed hard copy. For best on-screen display results, use Adobe Acrobat Reader (TM) version 4.0 or 5.0.

If you use Adobe Acrobat Reader, version 4.0, perform the following to optimize the illustrations:

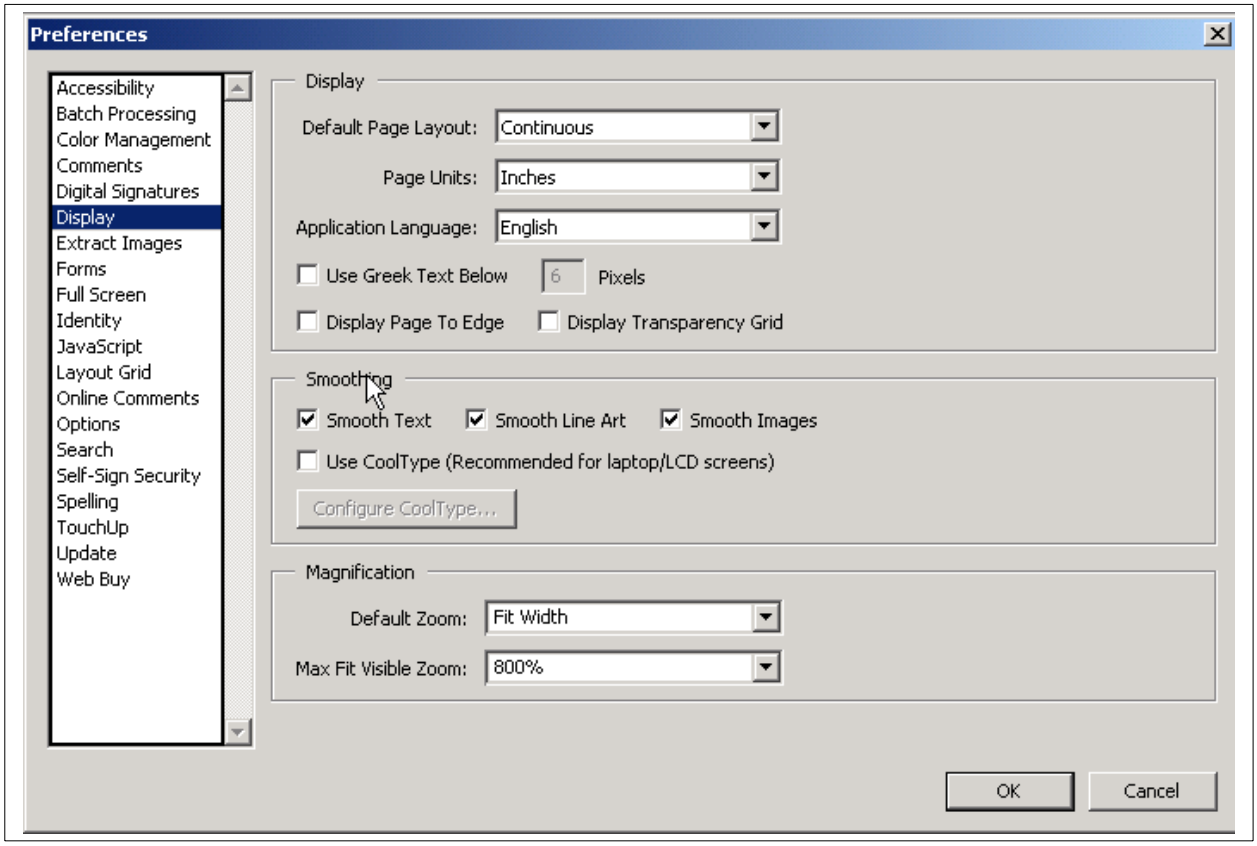
- Increase display magnification
- Print the document

For Adobe Acrobat Reader, version 5.0, perform the following steps to optimize the graphical display:

1. Start the Adobe Acrobat Reader, version 5.0 application.
2. From the top line menu, select: **Edit** -->**Preferences** -->**General**.
3. Select **Display**, from the preferences menu at the left side of the setup screen.
4. Select the following smoothing options from the Display setup screen:
   - **Smooth Text**
   - **Smooth Line Art**
   - **Smooth Images**

See Figure 1 to review Acrobat Reader version 5.0 display selections.

Figure 1 Acrobat Reader display setup selections



Symbols used in this guide

This guide uses the following symbols to draw your attention to important information:

Caution: Caution Symbol
Alerts you to conditions where you can damage the equipment.

Danger: Electrical Shock Hazard Symbol
Alerts you to conditions where you can get an electrical shock.

Warning: Warning Symbol
Alerts you to conditions where you can cause the system to work improperly or to fail.

Note: Note Symbol
Alerts you to important information.

Tip: Tip Symbol
Alerts you to additional information that can help you perform a task.

Warning: Grounding Symbol.
Alerts you to ground yourself with an antistatic grounding strap before performing the maintenance procedure.

Warning: Disconnect Symbol
Alerts you to remove the Business Communications Manager and Business Communications Manager expansion cabinet power cords from the AC outlet before performing any maintenance procedure.

Text conventions

This guide uses the following text conventions:

`bold Courier text`	Indicates command names and options and text that you need to enter in a command-line interface. Example: Use the **`dinfo`** command. Example: Enter **`show ip {alerts|routes}.`**
italic text	Indicates file and directory names, new terms, book titles, Web addresses, and variables in command syntax descriptions.
bold text	Indicates command names, screen titles, options and text for a graphical user interface (GUI).
angle brackets (< >)	Indicates a keyboard key press or simultaneous key presses, i.e. <ENTER> or <CTRL j>

Related publications

The following documents provide further information about the Business Communications Manager, related media bay modules, extension equipment, and system applications and software:

- *Business Communications Manager Programming and Operations Guide* describes core system operational configuration and how to program the Business Communications Manager equipment.
- *Business Communications Manager 200/400 Installation and Maintenance Guide* describes how to install the Business Communications Manager system.

How to Get Help

Your local distributor provides technical support for your Business Communications Manager system or has access to that information through a Technical Service Center (TSC).

If you require non-technical support, contact 1-800-4NORTEL (1-800-466-7835), choose option 3, Sales or Pre-Sales Support)

Chapter 1
Uninterruptable Power Supply (UPS) Overview

This book describes how to install, configure and monitor the Uninterruptable power supply (UPS) on the Business Communications Manager (BCM) 200, 400 and 1000 models.

This section provides an overview of the UPS functionality and describes the following information:

BCM and UPS power and control connections on page 18

UPS threshold values on page 19

Alarm and event reporting on page 19

Operational measurements and accounting on page 22

UPS default configuration settings on page 22

UPS Overview

A UPS device maintains continuous operation during power interruption or failure conditions and is an optional component of the BCM. The UPS feature provides power source monitoring and battery backup activation so that critical BCM functionality is maintained.

In a power failure situation, the UPS provides sufficient time to either correct the problem or activate a contingency plan to sustain services. The UPS is configured to perform a graceful shutdown of the BCM two minutes before the UPS battery power is drained.

Business Communications Manager release 3.5 supports the American Power Conversion (APC) UPS device. The UPS control software enables the configuration of various operational settings.

The interaction between the UPS and the Business Communications Manager occurs in three stages:

1. **Configuration** – this stage sends configuration information to the UPS device and requires minimal user interaction.
2. **Monitoring** – this stage is a steady-state, periodic monitoring cycle where the BCM reads the status of the UPS. This stage requires minimal user interaction.
3. **Failure condition** – this stage initiates an action when a threshold value is surpassed. The BCM requires major user interaction in the case of a planned system shutdown.

The UPS feature is supported in all markets (110~120V and 220~24V power standards). All BCM's using version 3.5 software can use the UPS feature.

BCM and UPS power and control connections

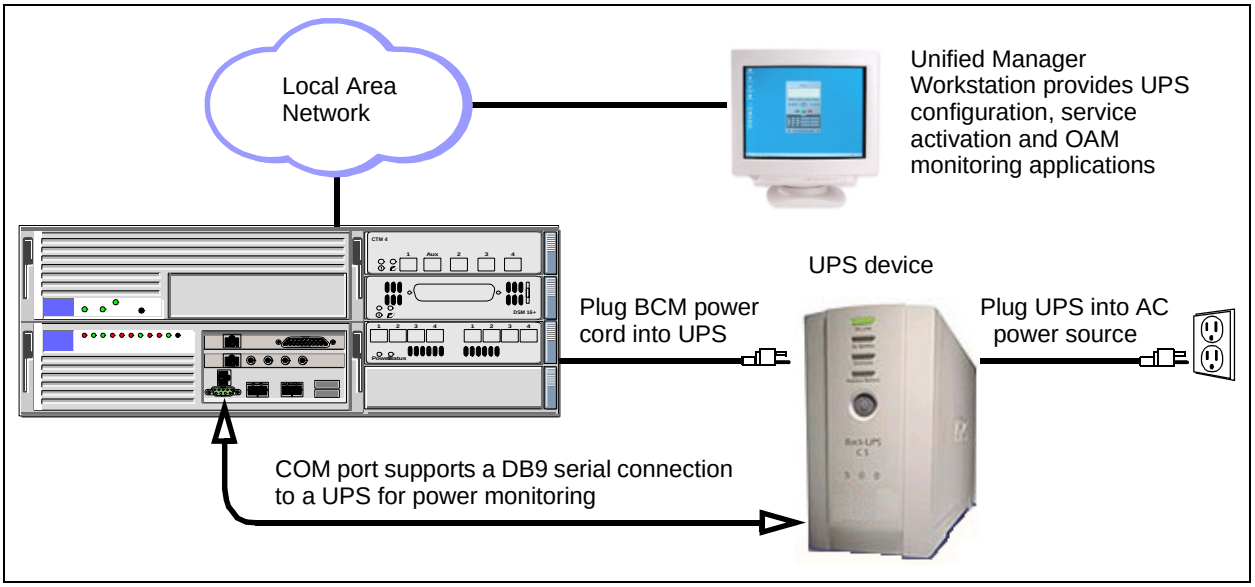
The UPS device operates in parallel with the BCM 200/400. The Business Communications Manager obtains power through the UPS. The UPS obtains power from a conventional AC power source.

The UPS meets Business Communications Manager power delivery requirements for 110~120 and 220~240 Volt standards. The BCM's operational power usage range (shown in the table below) is compatible with the UPS' operating range.

BCM Input Power Source			
110 ~ 120 Volt power standards		220 ~ 240 Volt power standards	
Minimum (VAC)	Maximum (VAC)	Minimum (VAC)	Maximum (VAC)
90.0	130.0	220.0	265.0

The serial connection between the BCM and UPS provides power monitoring and control capability. The UPS service uses standard RS232 serial protocol. Figure 2 on page 18 shows the physical BCM connections and OAM topology.

Figure 2 UPS / BCM power connections and topology


Local Area Network
Unified Manager Workstation provides UPS configuration, service activation and OAM monitoring applications
UPS device
Plug BCM power cord into UPS
Plug UPS into AC power source
COM port supports a DB9 serial connection to a UPS for power monitoring

UPS threshold values

UPS threshold values are tolerances that define the UPS operational requirements and power delivery capability. The UPS reports the threshold values through the Unified Manager. The following table provides the minimum and maximum UPS threshold values for 110~120 and 220~240 Volt standards. All configuration data is stored in the F:\Program Files\PwerChute\PwrChute.ini file.

	110 ~ 120 Volt UPS Threshold Values		**220 ~ 240 Volt UPS Threshold Values**	
	Minimum	Maximum	Minimum	Maximum
Line voltage minimum (AC)[1]	90	120	208	253
Line voltage maximum (AC)[2]	90	120	208	253
UPS output voltage (AC)[3]	106	127	220	240
Battery voltage (DC)[4]	16	36	16	36
Output frequency (Hz)[5]	59	60.25	49	50.25
UPS load (%)[6]	0	125	0	125
Temperature (degr. C)[7]	-15	45	-15	45

1 Line voltage minimum: The lowest AC input voltage supplied by the power source. This threshold represents the value recorded since you started the user interface module.

2. Line voltage maximum: The highest AC input voltage supplied by the power source. This threshold represents the value recorded since you started the user interface module.

3. UPS Output voltage: The voltage (AC) supplied by the UPS to the equipment supported.

4. Battery voltage: The voltage (DC) supplied by the UPS to the equipment supported during a power outage.

5. Output frequency: The line voltage frequency.

6. UPS load: The amount of battery power drawn by the equipment supported during a recorded interval. The value is represented by the percentage of the total power available in the UPS.

7. Temperature: The internal temperature of the UPS device.

Alarm and event reporting

The BCM software monitors the UPS threshold values and provides event reporting capability to the BCM SNMP trap and alarm reporting systems. The BCM monitors the UPS through the COM port and polls the UPS every 60 seconds. Power supply failure notification is sent to the OAM and alarm subsystem and to the recovery application.

The threshold values relate to the following:

- **Power**: Utility power failure, low battery power for the UPS device. The message advises users to take appropriate action on their BCM. The battery must be recharged for every minute of run time. Appropriate action is to verify the power supply is functional. Alternatively, try to connect to a secondary power supply, possibly switch telephony/data services to alternate location if possible.
- **Communications**: Send a message when communication with the UPS starts. Send a message when communication with the UPS is lost (e.g. remote UPS shutdown). If communication loss occurs, verify serial connection is functional or UPS is operational.

- **Operating conditions**: send a message when internal UPS operating temperature falls outside of the upper or lower threshold.

See Table 1 on page 20 for further information on event messages.

Table 1 UPS Event messages

Event ID	Event	Type
1005	Administrative shutdown	Info
100500	Administrative shutdown started	Info
100501	Administrative shutdown: User initiated	Info
100502	Administrative shutdown: Weekly shutdown	Info
100503	Administrative shutdown: Daily shutdown	Info
110000	Ambient temperature back within thresholds	Info
110100	Ambient humidity back within thresholds	Info
301400	Base module fan needs repair	Error
301500	Base module bypass power supply needs repair	Error
310001	Below lower ambient temperature threshold	Warn
310101	Below humidity threshold	Warn
2037	Bypass contactor failed	Error
1040	Bypass contactor OK	Info
1033	Battery added	Info
1034	Battery removed	Info
301000	Check installation of Smart Cell signal cable	Warn
310002	Exceeded upper ambient temperature threshold	Warn
310102	Exceeded upper humidity threshold	Warn
203800	Input circuit breaker tripped	Info
203900	Input circuit breaker reset	Info
200301	Low battery condition	Warn
103500	Main Intelligence module OK	Info
103600	Main Intelligence module added	Info

Event ID	Event	Type
1002	Communication Established	Info
300400	Communication lost while on battery	Info
300000	Unable to communicate with UPS	Warn
300200	UPS self-test failed	Error
100700	UPS returned from low battery condition	Info
100900	UPS batteries no longer need replacing	Info
101300	UPS overload condition solved	Info
101400	UPS runtime calibration initiated	Info
101500	UPS runtime calibration completed	Info
1004	UPS self-test passed	Info
101700	UPS returned from bypass	Info
1102	UPS internal temperature in bounds	Info
200000	UPS on battery	Info
200001	UPS on battery: High input line voltage	Warn
200002	UPS on battery: Brownout	Warn
200003	UPS on battery: Blackout	Warn
200004	UPS on battery: Small momentary sag	Warn
200006	UPS on battery: Deep momentary sag	Warn
200005	UPS on battery: Small momentary spike	Warn
200008	UPS on battery: Simulated power failure	Warn
103100	UPS module added	Info
103200	UPS module removed	Info
200200	UPS enabling SmartBoost	Info

Table 1 UPS Event messages

Event ID	Event	Type
203200	Main intelligence module removed	Warn
203300	Main intelligence module failed	Error
1030	Minimum redundancy regained	Warn
310700	Maximum internal UPS temperature exceeded	Warn
2030	Minimum redundancy lost	Warn
100300	Normal power restored: UPS on line	Info
103700	Redundant intelligence module OK	Info
103800	Redundant intelligence module added	Info
203400	Redundant intelligence module removed	Warn
203500	Redundant intelligence module failed	Warn
203600	System level fan OK	Info
2001	System shutdown Complete	Info
2036	System level fan failed	Error
1006	Shutdown cancelled	Info
1016	System Shutdown started	Info
100401	Scheduled UPS self-test passed	Info
300201	Scheduled UPS self-test failed	Error
300202	Scheduled UPS self-test failed: Invalid test	Warn
100403	Self-test at UPS passed	Info
300205	Self-test at UPS failed	Error
300206	Self-test at UPS failed: Invalid test	Warn
1018	Smart Cell signal restored	Info

Event ID	Event	Type
200400	UPS runtime calibration cancelled	Info
200401	UPS runtime calibration cancelled by user	Info
200402	UPS runtime calibration aborted by power failure	Info
200403	UPS unable to perform runtime calibration: Capacity < 100 %	Warn
200700	UPS enabling SmartTrim	Info
201301	UPS on bypass: user set via software or panel	Info
201302	UPS system is in maintenance bypass set by switch	Info
203100	UPS module failed	Error
301300	UPS internal temperature over limit	Warn
301301	UPS battery charger failure	Warn
200007	UPS on battery: Large momentary spike	Warn
301302	UPS on bypass: severe DC imbalance overload	Warn
301303	UPS on bypass: output voltage outside limits	Warn
301304	UPS on bypass: top module fan needs repair	Error
300100	UPS output overload	Warn
300300	UPS battery is discharged	Warn
301600	UPS battery needs replacing	Error
100402	User-initiated UPS self-test passed	Info
100601	User-initiated shutdown cancelled	Info
101601	User-initiated shutdown started	Info
300204	User-initiated self-test failed	Error
300206	User-initiated self-test failed: Invalid test	Warn

Operational measurements and accounting

The Business Communications Manager collects operational measurement (OM) information from the UPS and saves the data in a log file. The OM information is viewed through the Unified Manager or archlog applications. The OM values can be reset using the Unified Manager. For further information on how to access logs using the Unified Manager, refer to the *Management User Guide*.

Log files and traces

The BCM UPS service logs into (APC PowerChute.log) to track internal and external UPS service functionality. The messages described in Table 1 on page 20 are captured in the log file which can be viewed through the Unified Manager.

1. **Event Log Location** ("F:\Program Files\PwerChute\PwrChute.log", Fixed), this file checked periodically by Unified Manager collecting OMs information and UPS overall status.
2. **Data Log Location** ("F:\Program Files\PwerChute\PwrChute.dat", Fixed), this file checked periodically by Unified Manager collecting UPS Status Monitor information.
3. **Error Log Location** ("F:\Program Files\PwerChute\PwrChute.err", Fixed), this file checked periodically by Unified Manager collecting the UPS failures.

UPS default configuration settings

The UPS software is configured under the default settings defined in Table 2 on page 22.

Table 2 UPS default settings

General	
Signalling Type	Smart
Port	COM1
Auto UPS Reboot Enabled	Yes
Cable Type	Normal
Event Logging	
Event Log Enabled	Yes
Event Log Location	"F:\Program Files\PwerChute\PwrChute.log"
Select the Event Log Maximum	5000 KB
Data Logging	
Data Log Enabled	Yes
Data Log Location	"F:\Program Files\PwerChute\PwrChute.dat"
Select the Data Log Maximum	5000 KB
Data Logging interval	60 Seconds
Error Logging	

Table 2 UPS default settings

Error Log Enabled	Yes
Error Log Location	“F:\Program Files\PwerChute\PwrChute.err”
Select the Error Log Maximum	5000 KB.
Shutdown	
Shutdown Delay	30 Seconds
Admin Shutdown Delay	30 Seconds

Chapter 2
Install and Initialize the Uninterruptable Power Supply

This section describes how to install and initialize the Uninterruptable power supply (UPS) on the Business Communications Manager (BCM) 200, 400 and 1000 models.

This section describes the following:

Procedure: Install the UPS on page 25

Procedure: Initialize the serial port on page 26

Procedure: Enable UPSConsoleToggle: on page 27

Procedure: Enable the console (batch file): on page 28

Install and initialize the UPS

Use the procedure in this section to perform a first-time UPS installation on your Business Communications Manager.

Procedure: Install the UPS

Use this procedure to install and power-up the Business Communications Manager through the UPS. Refer also to the UPS product installation manual for detailed instructions.

To install the Business Communications Manager to the UPS:

1. Plug the UPS power cord into the AC power source (wall outlet).
2. Plug the BCM power cord into the UPS.
3. Connect the serial cable from the Business Communications Manager to the UPS.
4. Ensure you have a LAN connection from the Business Communications Manager to the Unified Manager workstation.
5. Power-up the UPS.
6. Power-up the Business Communications Manager.
7. Wait for the Business Communications Manager to finish boot-up.
8. This procedure is complete.

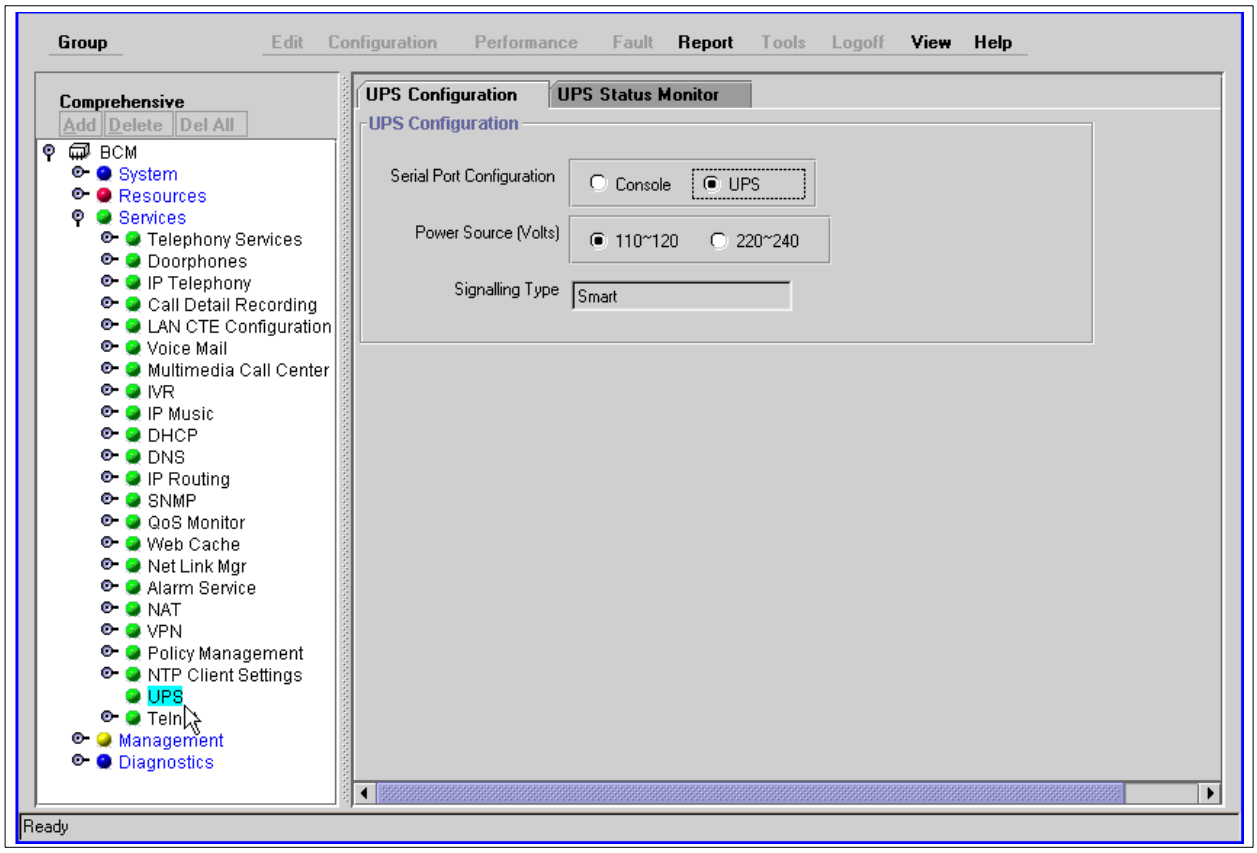
Procedure: Initialize the serial port

The Unified Manager provides a means to modify the serial port configuration and UPS service settings. When you enable the UPS device using the Unified Manager interface, Unified Manager turns the console service OFF and turns the UPS service ON. Conversely, if the UPS serial cable is disconnected, the BCM Unified Manager turns the console service ON and turns the UPS service OFF.

To initialize the UPS serial port:

1. Connect the serial cable from the BCM to the UPS.
2. Access the correct Business Communications Manager in your network from the Unified Manager workstation browser.
3. Select the **Services** key from the Unified Manager main page and expand the navigation tree. A list of available services appears in the Services information frame.
4. Select the **UPS** heading from the navigation tree window.
5. Select the **UPS configuration** tab from the UPS setup screen. The UPS configuration setup screen appears (see Figure 3 on page 26).

Figure 3 UPS configuration setup screen display



6. Select the **UPS** radio button to enable the serial port for use by the UPS.

7 Select the power source type (110 ~ 120v or 220 ~ 240v).

Note: Once the UPS is selected and enabled on the Unified Manager “Serial Selection Page”, the UPS sends the message “UPS Communication Established” to the NT event log, when the UPS communication started. If the BCM loses or cannot establish a link to the UPS, an error log appears “Unable to Communicate with the UPS”.

8 This procedure is complete.

UPSConsoleToggle Service

UPSConsoleToggle is an Auto-Start service that initiates at system boot time to enable the serial console for 15 minutes. Plug the console serial cable into the BCM and work on BCM console for a period of 15 minutes.

After 15 minutes, the service switches back to the UPS to enable the UPS (if the UPS was originally selected and enabled).

- To extend the Console time, stop the UPSConsoleToggle using the command “Net Stop UPSConsoleToggle”.
- The UPS service needs to be enabled from the Unified Manager when the user ends the console session.

Procedure: Enable UPSConsoleToggle:

Use this procedure to enable the UPSConsoleToggle service.

To enable the UPSConsoleToggle service:

1 Wait for all services to be up and running.

2 Verify that the UPS service is running.

3 If UPS service is running, change its start-up type to Manual-Start and the console CMDRMT service to Auto-Start, then stop UPS service and start Console service.

4 Wait for 15 minutes.

5 Toggle the UPS/Console.
Change the console start-up type to **Manual-Start** and the UPS to **Auto-Start**. This stops the console service and starts the UPS service.

6 Stop the UPSConsoleToggle service.

Procedure: Enable the console (batch file):

Use this procedure to use the serial port for startup or emergency maintenance purposes.

1. If you have access to the Unified Manager, from Services/UPS, select the console.
2. If you have an access to the BCM via the IP, Telnet to the BCM using the IP connection and run the batch file called "**EnableConsole.bat**" located on "F:\Program Files\Nortel Networks\Voice Platform".
3. Running EnableConsole.bat will do the following:
   - Changes the value of the register key to: "KEY_LOCAL_MACHINE\SOFTWARE\APC\GUI\SerialSelect" to 0
   - Stops the UPS service and changes its startup type to Manual.
   - Changes the CMDRMT (Console Service) startup type to AUTOMATIC and start it.
4. This procedure is complete.

Chapter 3
Monitor the Uninterruptable Power Supply

This section describes how to monitor the Uninterruptable power supply (UPS) on the Business Communications Manager (BCM) 200, 400 and 1000 models.

This section describes the following procedures:

Procedure: Access the UPS Status monitor on page 30

Procedure: Access the UPS OM and log reports on page 31

Procedure: Access the UPS status report on page 33

Procedure: Test the UPS on page 34

Monitor the UPS

The Business Communications Manager UPS service communicates with the UPS device through a serial (DB9) cable. The UPS service provides the following capabilities:

- Monitors the UPS using the COM port. The BCM polls the UPS device every 60 seconds.
- Power source failure notification is sent to the OAM and alarm subsystem and to the recovery application.
- Provides a warning signal when UPS battery power is low.
- Allows you to perform a remote UPS shutdown.
- Allows you to configure battery recharge time. The battery must recharge for every minute of run time.
- Allows you to configure the delay between warning messages.
- Allows an auto power off for the Business Communications Manager.
- Allows you to configures the UPS to perform a graceful BCM shutdown (and cleanly shutdown telephony) two minutes before the battery is drained.

There are two methods to monitor the UPS:

1. Select the UPS Status monitor tab to monitor the UPS device only (see “Procedure: Access the UPS Status monitor” on page 30)
2. Select the UPS Status report to monitor the UPS device and BCM UPS service (see “Procedure: Access the UPS status report” on page 33).

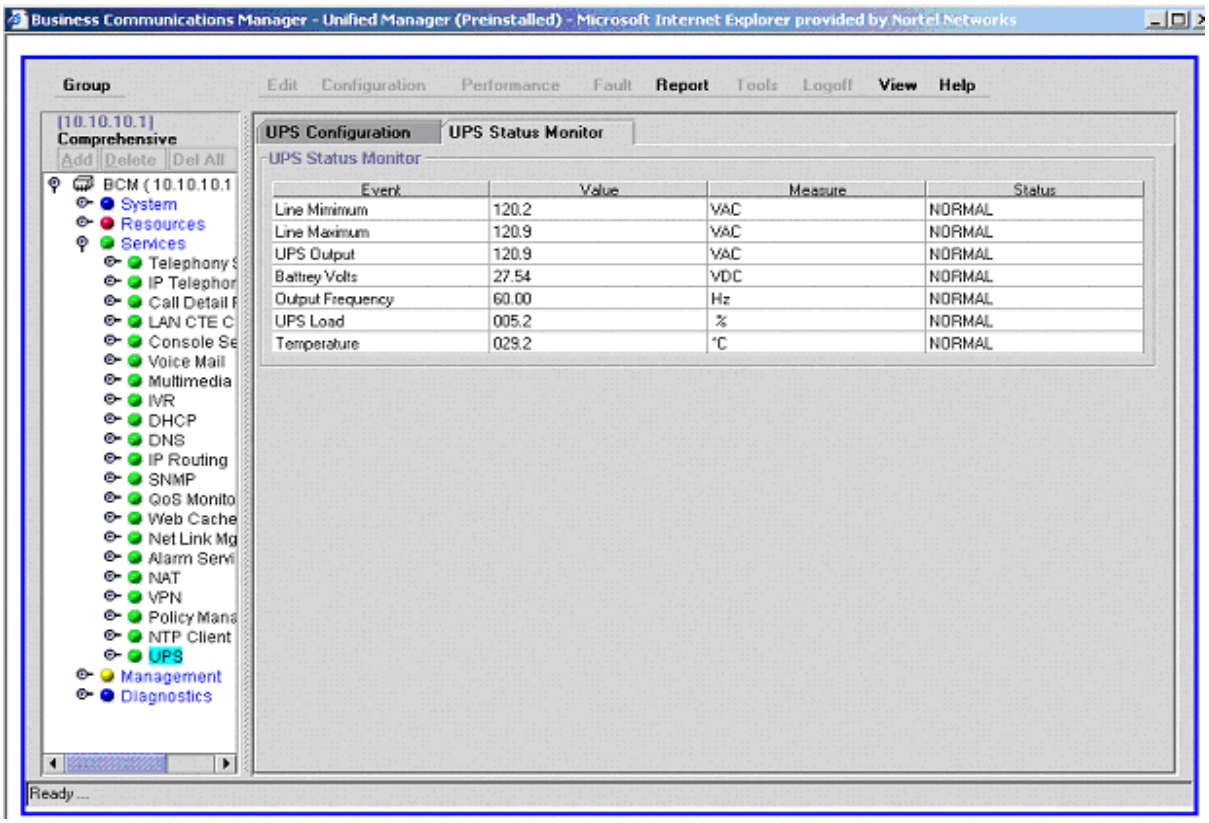
Procedure: Access the UPS Status monitor

Use this procedure to access the UPS status monitor tab interface and monitor the UPS device.

To access the UPS status monitor:

1. Initialize the serial port as described in Procedure: Initialize the serial port on page 26.
2. Access the correct Business Communications Manager in your network from the Unified Manager workstation browser.
3. Select the **Services** key from the Unified Manager main page and expand the navigation tree. A list of available services appears in the Services information frame.
4. Select the **UPS** heading from the navigation tree window.
5. Select the UPS status monitor tab from the UPS setup screen. The UPS status monitor screen appears (see Figure 4 on page 30).

Figure 4 UPS Status monitor screen display



6. Examine the UPS device status information displayed in the information window.
7. This procedure is complete.

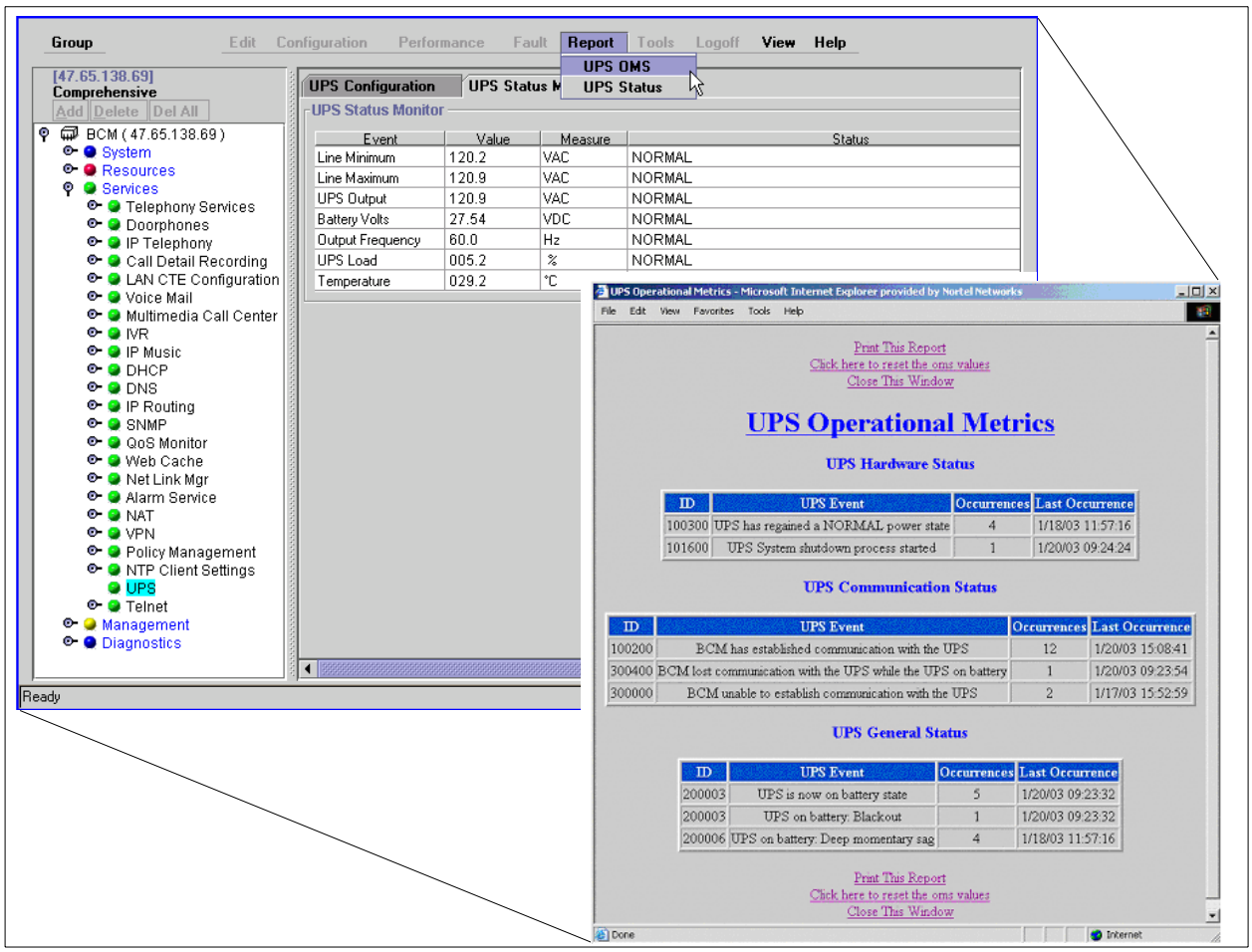
Procedure: Access the UPS OM and log reports

Use this procedure to access the UPS operational metrics (OMs), UPS log files or status reports.

To access the UPS OM or Log reports:

1. Initialize the serial port as described in Procedure: Initialize the serial port on page 26.
2. Access the correct Business Communications Manager in your network from the Unified Manager workstation browser.
3. Select the **Services** key from the Unified Manager main page and expand the navigation tree. A list of available services appears in the Services information frame.
4. Select the **UPS** heading from the navigation tree window.
5. Select the Report from the top line menu.
6. Select the OMs Report from the drop-down menu. The UPS OMs report appears (see Figure 5 on page 31).

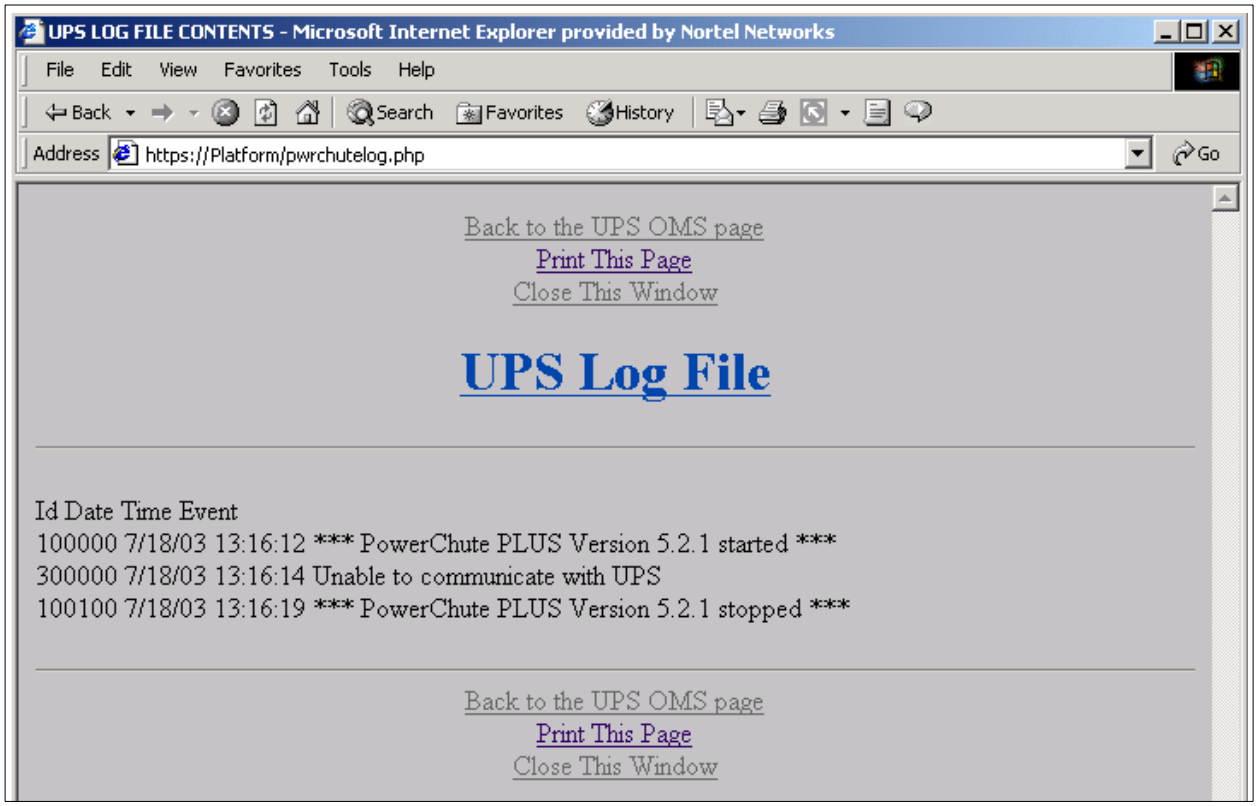
Figure 5 UPS OMs report



7 To reset the OMs, select "**Click here to reset the oms values**" from the screen.

8 To view the Log files, select "**Click here to view UPS Log File**" from the screen (see Figure 6 on page 32).

Figure 6 UPS Log file report


UPS LOG FILE CONTENTS - Microsoft Internet Explorer provided by Nortel Networks
File Edit View Favorites Tools Help
Back Search Favorites History
Address https://Platform/pwrchutelog.php
Go
Back to the UPS OMS page
Print This Page
Close This Window
UPS Log File
Id Date Time Event
100000 7/18/03 13:16:12 *** PowerChute PLUS Version 5.2.1 started ***
300000 7/18/03 13:16:14 Unable to communicate with UPS
100100 7/18/03 13:16:19 *** PowerChute PLUS Version 5.2.1 stopped ***
Back to the UPS OMS page
Print This Page
Close This Window

9 To print the report, select "**Print this Report**" from the screen.

10 To close the report window, select "**Close This Window**" from the screen.

11 This procedure is complete.

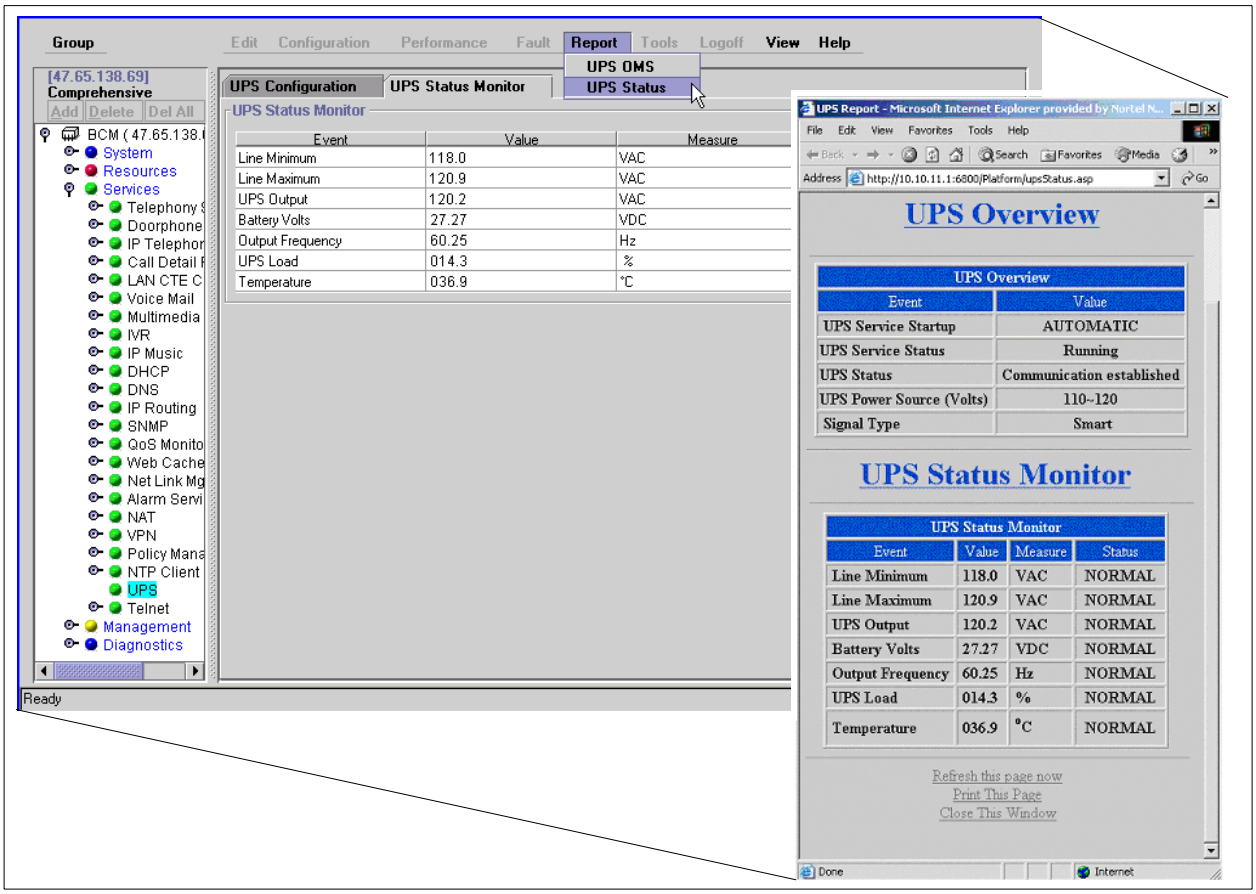
Procedure: Access the UPS status report

Use this procedure to access the UPS status report to monitor the UPS device and BCM UPS service.

To access the UPS status report:

1. Initialize the serial port as described in Procedure: Initialize the serial port on page 26.
2. Access the correct Business Communications Manager in your network from the Unified Manager workstation browser.
3. Select the **Services** key from the Unified Manager main page and expand the navigation tree. A list of available services appears in the Services information frame.
4. Select the **UPS** heading from the navigation tree window.
5. Select the Report from the top line menu.
6. Select the UPS Status report from the drop-down menu. The UPS status report appears (see Figure 7 on page 33).

Figure 7 UPS status report



7. To print the report, select "**Print this Report**" from the screen.

8 To close the report window, select "**Close This Window**" from the screen.

9 This procedure is complete.

Procedure: Test the UPS

Use this procedure to test the UPS power backup function after you have installed and configured the UPS for the Business Communications Manager.

The UPS device automatically performs a biweekly self-test. Locate the test results under the following path:
F:\Program Files\PwerChute\PwrChute.log file.

The APC PwrChute Plus software is recommended to simulate and test the UPS self test and UPS calibration. (APC PwrChute Plus software already installed on BCM).

To test the UPS:

1 Ensure that the serial cable between the Business Communications Manager and the UPS (or the expansion chassis) is securely connected at both ends.

2 Simulate a power failure. Disconnect the power cord from the AC power source (wall outlet) to the UPS device.

3 Verify that the BCM connected to the UPS device remains operational

4 Verify that a warning message and/or alert appears on the client screen.

5 Wait until the UPS battery reaches a low level. A system shutdown should occur (on the BCM 200/400 and 1000).

6 After system shutdown, restore power to the UPS device.

7 Check the system log in the Event Viewer to ensure that all actions are logged and that there are no errors.

8 This procedure is complete.